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EXAMINER
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MAPLES, JOHN S

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1745

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/765,822  
Filing Date: January 27, 2004  
Appellant(s): KRAJEWSKI ET AL.

**MAILED**  
**MAR 09 2007**  
**GROUP 1700**

WARN, HOFFMAN, MILLER & LaLONE, P.C.  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12 October 2006 appealing from the  
Office action mailed 21 July 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 12 October 2006 has been entered.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is deficient. 37 CFR 41.37(c)(1)(v) requires the summary of claimed subject matter to include: (1) a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number, and to the drawing, if any, by reference characters and (2) for each independent claim involved in the appeal and for each dependent claim argued separately, every means plus function and step plus function as permitted by 35 U.S.C. 112, sixth paragraph, must be identified and the structure, material, or acts described in the specification as corresponding to each claimed function must be set forth with

Art Unit: 1745

reference to the specification by page and line number, and to the drawing, if any, by reference characters. The brief is deficient because appellant has not referred to the specification by page and line number for each of the independent claims. Page 5, line 20 through page 6, line 13 of the present specification set forth the fuel cell including the claimed bipolar plates. In addition, the membrane 92 formed between the bipolar plates is set forth on page 6, lines 10-11 and as seen in Figures 10 and 11.

In addition, the appellant has set forth limitations with regards to the drawing figures for claim 22, however, claim 22 is not part of the claimed subject matter under appeal.

#### **(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

#### **(7) Claims Appendix**

Claims 22-24 have been incorrectly included in the claims appendix. As stated previously in this answer, claims 22-24 are not under appeal.

#### **(8) Evidence Relied Upon**

6,893,765	NISHIDA ET AL.	5-2005
6,974,648	GOEBEL	12-2005

#### **(9) Grounds of Rejection**

The following grounds of rejection are applicable to the appealed claims:

Art Unit: 1745

Claims 1-18 rejected under 35 U.S.C. 102(e) as being anticipated by Nishida et al.-US 6,893,765. (Nishida)

Reference is made to Figures 1-3 of Nishida along with column 4, line 59 through column 5, line 57 and Example 1 and in particular to column 9, lines 24-26 where the bipolar plate is taught being made of aluminum. Figure 1 depicts the bipolar plates 21 and 31 sandwiching the membrane (MEA) 10. In view of the bipolar plates having recesses 31' therein, flow channels are formed in the bipolar plates. Figure 1 in Nishida shows trapezoidal shaped flow channels. It is noted that in that all of the bipolar plates 21 in the fuel cell stack in Figure 1 have recesses at the ends thereof, which recesses include end plates 37, 27 and 17 that hold the bipolar plates together.

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Goebel-US 6,974,648. (Goebel)

Reference is made to the Abstract of Goebel along with Figures 2-5 and column 1, lines 12-23; column 1, lines 55-67 and column 3, line 7 through column 5, line 57. These portions of Goebel set forth metal bipolar plates 60, 160 and 260 with a membrane (MEA) inbetween-see Figures 3-5. The middle portions of each bipolar plate include trapezoidal-shaped flow channels 66, 68, 70; 166, 168, 170; and 266, 268, 270 as seen in Figures 3-5, respectively. The edges of the bipolar plates are recessed as seen in the right hand and left hand sides of Figures 2-5.

**(10) Response to Argument**

First of all, it is noted that appellant is arguing the merits of claim 22. This claim is not involved in this appeal.

The appellant states that claims 1 and 11 are product claims and are defined by the structural elements that make up the product. Appellant further states that claims 1 and 11 recite that the bipolar plates are extruded plates, which defines them as structural elements and not a process. The examiner agrees with this analysis.

Appellant further states that claims 1 and 11 recite that the flow channels are formed by an extrusion process. Appellant further states that this language is merely descriptive language that identifies how the flow channels are formed for a bipolar plate that is an extruded bipolar plate. This may be true, however, the wording “extruded bipolar plate” is a product-by-process claim limitation and this limitation will be discussed below.

Appellant also states that the language “the flow channels are formed by an extrusion process” is functional language. The examiner disagrees with this analysis. The fact that the bipolar plates are formed by extrusion does not define a particular capability or purpose for the flow channels.

Next, appellant argues that claims 1 and 11 are not product-by-process claims. It is true that most of the language in claims 1 and 11 is not product-by-process terminology, however, the language “extruded bipolar plate(s)” is product-by-process terminology. This language sets forth a method by which the bipolar plate(s) are formed and are product-by-process limitations. Thus, contrary to appellant's assertion, the

Art Unit: 1745

application of In Re Thorpe 227 USPQ 964 is proper for this portion of the claimed subject matter.

The appellant further argues that if claims 1 and 11 are product-by-process claims, then the language that the bipolar plates are made by an extrusion process adds patentable significance to the claims. The examiner respectfully disagrees. As In Re Thorpe states, as long as a reference meets the limitations of the product of a product-by-process claim, then the claimed product is met by the teachings in the reference. It does not matter how the product is formed as long as the reference teaches the product limitations. As stated previously in this answer, both Nishida and Goebel teach the limitations of the bipolar plates as appellant is currently claiming.

More specifically, appellant states that bipolar plates made by an extrusion process impart a distinctive structural characteristic to the plate. This argument will be addressed in the paragraphs that follow with regard to the applied references to Nishida and Goebel.

Appellant argues that bipolar plate in Nishida has a different profile that appellant's bipolar plate profile. Reference is made to Figure 1 of Nishida where flow channels are depicted of a trapezoidal shape. This shape of flow channels in Nishida is the same configuration as the flow channels in the bipolar plate depicted by appellant in Figure 3 of the present application. Therefore, the bipolar plates in Nishida have the same configuration and profile as the bipolar plates of appellant and thus the claimed subject matter is met by the teachings to Nishida.

Art Unit: 1745

Appellant further argues that Nishida does not teach a bipolar plate formed by an extrusion process. This may be true, however, appellant has claimed a product and not a method of making that product. As stated previously in this answer, in a product-by-process claim, the method of making the product is immaterial. As long as the reference teaches the final product, then the claim is anticipated. Nishida does such.

The only argument by appellant regarding the application of the Goebel patent is that Goebel does not teach an extruded bipolar plate for a fuel cell. It is true, that Goebel does not specifically teach forming a bipolar plate by extrusion, however, the product formed in Goebel is the same as appellant and so the claim is anticipated by Goebel. As stated previously in this answer, in a product-by-process claim, the method of making the product is immaterial. As long as the reference teaches the final product, then the claim is anticipated.

Appellant further argues the merits of claim 22 with regard to recesses in the bipolar plates. Again, this argument is deemed moot because claim 22 is not part of the claims under appeal.

Appellant argues that Nishida does not teach recesses in the edges of the bipolar plates in Nishida. The examiner respectfully disagrees. By virtue of the bipolar plates in Nishida having peaks and valleys therein, the same forms recesses therein. With regard to Figure 1 in Nishida, the upper bipolar plate 21, for example, has a recess in the right side edge in which the end plate 37 is placed. Similarly, the left side edge of the upper bipolar plate 21 has a recess therein in which the end plate 17 is placed. It is noted that the edge of the plate 21 includes the outer peripheral right and left side



Art Unit: 1745

portions of the bipolar plate which includes the area covered by the end plates and an opening through which gases flow.

The appellant also argued that Goebel does not teach recesses in the edges of the bipolar plates therein. By virtue of the bipolar plates in Goebel having peaks and valleys therein, the same forms recesses therein. For example, as seen in Figure 5 of Goebel, the right side edge of the bipolar plate 260 has a recess therein, which recess allows gas to flow therethrough. Also, the left side edge of the bipolar plate 260 includes a recess at the end thereof, which recess also allows gas to flow therethrough.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
John S. Maples

Conferees:

Patrick J. Ryan



William Krynski

